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First record of the species Helochares atropiceus Regimbart, 1903 (Coleoptera: Hydrophilidae) from the Loktak lake of Manipur, India

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Abstract

Helochares atropiceus Regimbart, 1903 belonging to the genus Helochares Mulsant, 1844 (Coleoptera: Hydrophilidae) is recorded for the first time in India. The species Helochares atropiceus Regimbart, 1903 has been collected from Loktak Lake of Manipur and an identification key to the species of the Helochares species found in India is provided in the text.

Keywords: Hydrophilidae, Helochares, New records, Loktak Lake, Manipur, India.

Introduction

Hydrophilidae, a large family of beetles, is represented by 146 genera and about 3335 known species from the world (Hansen, 1999; Short and Herbauer, 2006; Short and Fikacek, 2011). From the four subfamilies of Hydrophilidae, only two (Hydrophilinae and Sphaeridiinae) are recorded from the Oriental region (Komarek, 2003), of which Hydrophilinae comprising more than 1600 described species is mostly aquatic. A total of 34 genera of aquatic Hydrophilidae are known from Oriental region. So far 23 genera and 67 species of Hydrophilidae have been recorded from India (Deepa, 2010).

Hydrophilid beetles are usually separated from other beetles as its first abdominal sternite is not divided by hind coxae, antennae terminating in an abrupt multisegmented club; maxillary palpi usually as long as and much longer than the antennae (except the subfamily Sphaeridiinae), pronotum mostly smooth and usually as wide as elytra at base; eyes usually not protuding but if so then the head usually deflexed. The species of this subfamily are generally found in stagnant waters and may also inhabit leaf litter and decaying organic material. Larvae are predaceous, preying on various smaller invertebrates, while adults are mostly saprophagous feeding on different kinds of decaying organic matters.

Helochares Mulsant, 1844 is a large genus of the Hydrophilidae. At present, the genus Helochares Mulsant, 1844 comprises 180 described species distributed worldwide (Hansen, 1999; Short and Herbauer, 2006; Short and Fikacek, 2011).

A total of 6 species of the genus have been recorded from India so far. Helochares can be separated from other Hydrophilids by the following characters; head not strongly deflexed; scutellum shorter than its basal width; meso and metatibia lacks swimming hairs. Antennae with nine segments, maxillary palp elongate longer than antennae, last segment shorter than the penultimates and pseudobasal segment of maxillary palps bowed inward when extended forward. Mesosternum without definite carina and all tarsi 5 segmented.

Materials and Methods

The material examined for this study was collected by means of sieve, ladle, and net with 1 mm pores in different sites of Loktak Lake of Manipur. The beetles were killed using ethyl alcohol solution. The specimens were studied in the Entomology Research Laboratory, P.G. Department of Zoology, Dhanamanjuri College of Science, Imphal. Aedeagophores were dissected under a stereo-zoom microscope and cleared in 10% KOH solution for 1-2 h. The photographs were taken using an Olympus type

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BX51 compound microscope and a Nikon type SMZ 1500 stereo-zoom microscope. Three specimens were deposited in the Laboratory of Entomology, P.G. Department of Zoology, Dhanamanjuri College of Science, Imphal, Manipur. Two specimens were deposited in the Division of Entomology Museum. Indian Agriculture Research Institute (IARI), New Delhi, India.

Description

Helochares atropiceus Regimbart, 1903

Helochares atropiceus Regimbart, 1903, Ann. Soc. Ent. F. 72:53(Valid. sp., not syn. as in d'Orchymont, 1923, Treubia, 419.)

Helochares ohkurai Sato, 1976, Ent. Rev. Jap., 29:21. - Syn.; Hebauer, 2001, Latissimus, 14:15.

Material examined

2♂, Phubala (Loktak Lake, Manipur) wetland, 39 Km, South of Imphal, (Latitude 24° 27. 327´N and 93°51. 295´E Longitude), altitude763 m 21.xi.13. Coll. by M Bhubaneshwari, O.Sandhyarani and S.Dineshwar.

1♂&1♀ Longum (Loktak Lake, Manipur), wetland, 45 Kms, South of Imphal, (Latitude 24°31. 011´N and 93°49. 066´E Longitude), altitude 822 m 7.ii.2014. Coll. by, M.Bhubaneshwari, O.Sandhyarani and S. Dineshwar.

1♀ Takmupat (Loktak Lake, Manipur), wetland, 48 kms, South of Imphal (Latitude 24°29.221´N 93°48.571´E Longitude), altitude 800 m 13.i.2014. Coll. by, M. Bhubaneshwari, O. Sandhyarani, S. Dineshwar.

Differential diagnosis

Dorsal coloration generally black, medium size and generally fine punctuations on head, pronotum and elytra. Helochares atropiceus can be easily distinguished by its distinct shape of the aedeagus, small notch in front of the head and metasternal keel highest apically.

Form and colour

Body elongate oval, (Fig.1), length 6.48-6.50 mm and 2.99- 3.00 mm width, rather flat entirely black, shining, finely dense punctate on surface. Head, pronotum, scutellum and extreme base of the elytra black, lateral margins of pronotum, elytra narrowly pale, elytra black, maxillary palpi reddish brown, vertical surface of head brown, antennae reddish brown, thoracic and abdominal ventrites black, legs same colour as sternum and thoracic, generally punctuation on head, and pronotum moderately fine separated by about width of a puncture and punctuation on head and pronotum is similar to elytra and well impressed.

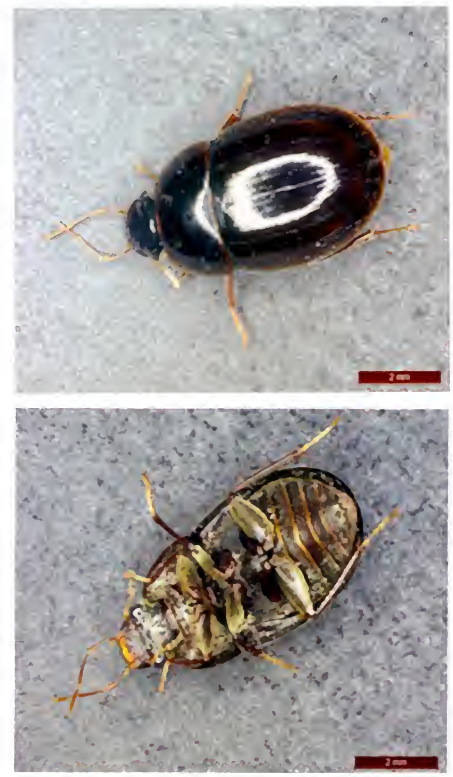

FIGURE 1.Habitus of Helochares atropi ceus (Dorsal & Ventral view)

Head

Front edge of the head sinuate, moderately fine and densely punctate, clypeus deeply excavated at anterior margin, maxillary palpi long and slender, second segment largest, apical segment about 2/3 length of the middle one, antennae 9 segmented with club fuscescent, the terminal joint twice as long as the preceding one.

Pronotum

Pronotum shining black, sides widely rounded margins narrowly dark reddish and a little less densely punctuate than head. Small to medium

size puncture, well impressed and separated by about width of a puncture.

Elytra

Elytra punctate same size or somewhat smaller than those of pronotum and a little sparser, particularly towards sides and apex. A sparse row of serial punctures traceable in about middle of each elytron and another weaker row near lateral margins, metasternum with a small elevation on middle. Femora with rugose portion covering all about small portion near apex, coxal plates sparsely and weakly punctured, covered in moderately impressed fine reticulation. Claws on protarsi strongly recurved, inner one with large scale like vertical expression at its base, metatarsal claw similar in shape but not quite as developed.

Abdomen

Abdomen with five exposed sternites, sternites shiny, covered with relatively sparse, small setose, punctures and apex of last sternites having with small notch.

FIGURE 2: Male genitalia of Helochares atropiceus (Dorsal & Ventral view)

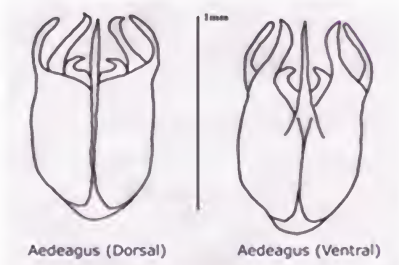

FIGURE 3: Male Aedeagus of Helochares atropiceus

Male genitalia

Aedeagus short and stout, from base wing shaped bent outwards terminally narrowed tips near parameres, parameres converging towards median lobe and two small hook shaped lobes present near median lobe. Median lobe narrow spine like as long as parameres (Fig. 2 & 3).

Biology

All the specimens were collected from the edge of lake Loktak which is unkempt and surrounded by marsh grasses and plant debris.

Remarks: This species is recorded for the first time from Manipur (Loktak lake) and also from India.

Discussion

Helochares atropiceus could be distinguished from other Helochares species on basis of short and stout aedeagus, base wing shaped, bent outwards, terminally narrowed tips near parameres, parameres converging towards median lobe and two small hook shaped lobes present near median lobe. Median lobe narrow spine like as long as parameres. Helochares atropiceus was distinguished from other Helochares based on male aedeagus structure provided by Jia Feng-long et al. (2010). d´Orchymont (1923) synonymised Helochares atropiceus and Helochares taprobanicus. But in present study Helochares atropiceus is not synonymised with Helochares taprobanicus being different in their male aedeagus, black maxillary palp, margins of pronotum fully black in colour. So, Helochares atropiceus and Helochares ohkurai Sato (1976) are synonyms according to Hebauer (2001).

Helochares species found in India:

1. Helochares pallens
2. Helochares taprobanicus
3. Helochares anchoralis
4. Helochares crenatus
5. Helochares densus
6. Helochares lentus
7. Helochares atropiceus (New record)

Tentative identification Key to the Indian Helochares species

The following key summarized the diagnostic characters of the Helochares species recorded from India. However, there might be at least as many undescribed species of the genus occurring in different part of India based on our inspection of several collections. The following key is therefore very tentative and should be used with extreme care.

1. Body longer than 4.0mm, dorsum with course ground punctuation or serial punctures; Coloration variable……..……2
- Body less than 4.0 mm long, dorsum with fine ground punctuation, without serial punctures; light brown in colour……..……...**H. pallens Macleay**
2. Elytra with distinct rows of coarse serial punctures, dorsal colouration light to medium brown……..……...……..4
- Elytra without distinct rows of serial punctures, dorsal coloration black……...…….....3
3. Maxillary palpi black in colour and terminal joint much shorter than the third joint ……**H. taprobanicus Sharp**
- Maxillary palpi not black in colour and terminal joint not much shorter than the third joint…….**H .atropiceus Regimbart**
4. Elytra with moderately distinct rather fine punctuation and also with very distinct series of much larger punctures……**H. lentus Sharp**
- Elytra with less coarse and less punctuation……**H. densus Sharp**
5. Punctures on head smaller than pronotum (striae deeply grooved and strongly punctures), serial punctures relatively small confluent and forming grooves…….....**H. anchoralis Sharp**
- Puncture on head and pronotum quite strongly closely and regularly punctures, serial punctures deeply grooved and strongly densely puncture…..**H. crenatus Regimbart**

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